FUJIFILM

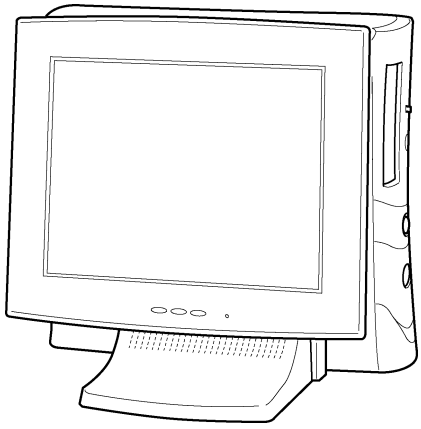
FUJI COMPUTED RADIOGRAPHY

CR Console

DETAILED QA SOFTWARE
OPERATION MANUAL

2nd Edition

April 2002



MADE IN JAPAN

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2002. 04

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INTRODUCTION

This operation manual explains functions and operations of the Detailed QA Software to be performed at the CR Console. Refer to the “CR Console OPERATION MANUAL” (No.:010-034-xx) and the “CR Console OPERATION MANUAL SEPARATE VOLUME, THE USER UTILITY OPERATIONS” (No.:010-036-xx) concerning other functions and operations.

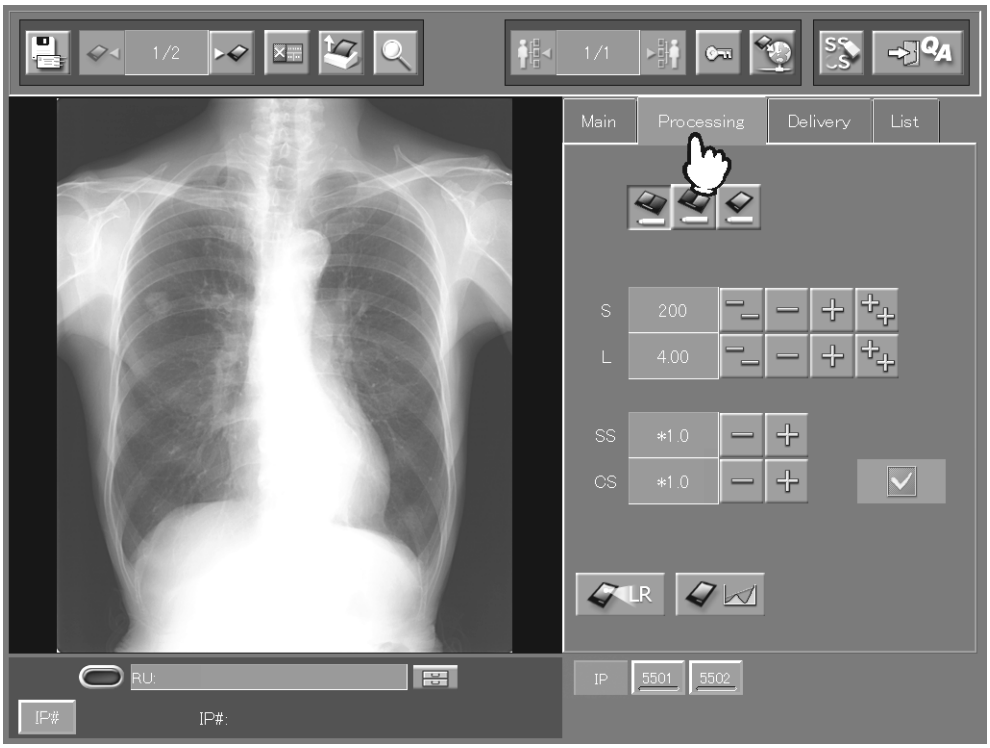
OPERATIONS

The Detailed QA Software enables a user to perform processing such as GP (Tonal Conversation Processing), RP (Spatial Frequency Processing), DRC (Dynamic Range Control Processing), TAS (Tomographic Artifacts Suppression Processing), MFP (Multi-objective Frequency Processing) and PEM (Pattern Enhancement Processing for Mammography) for the images read by the Image Reader. (To perform MFP and PEM, optional software is required for each processing separately.)

Each operation will be performed on the Image Edit Screen. Perform the following operation steps.

(1) Displaying screen

Display the Image Edit Screen (by image/by study), and then select the tab of the “Processing” folder.



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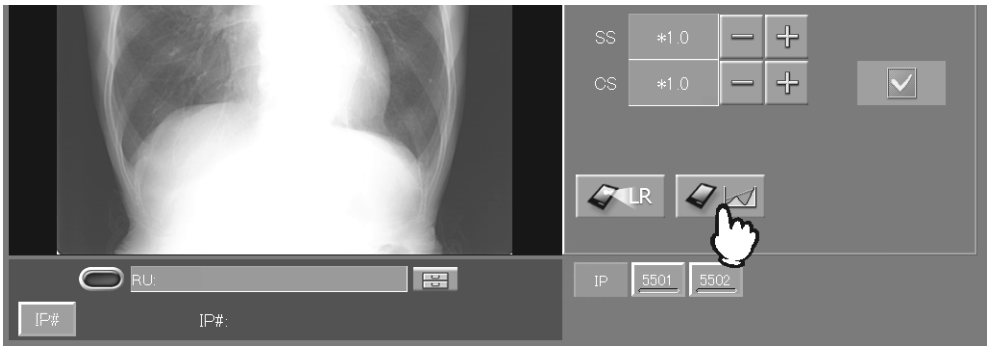
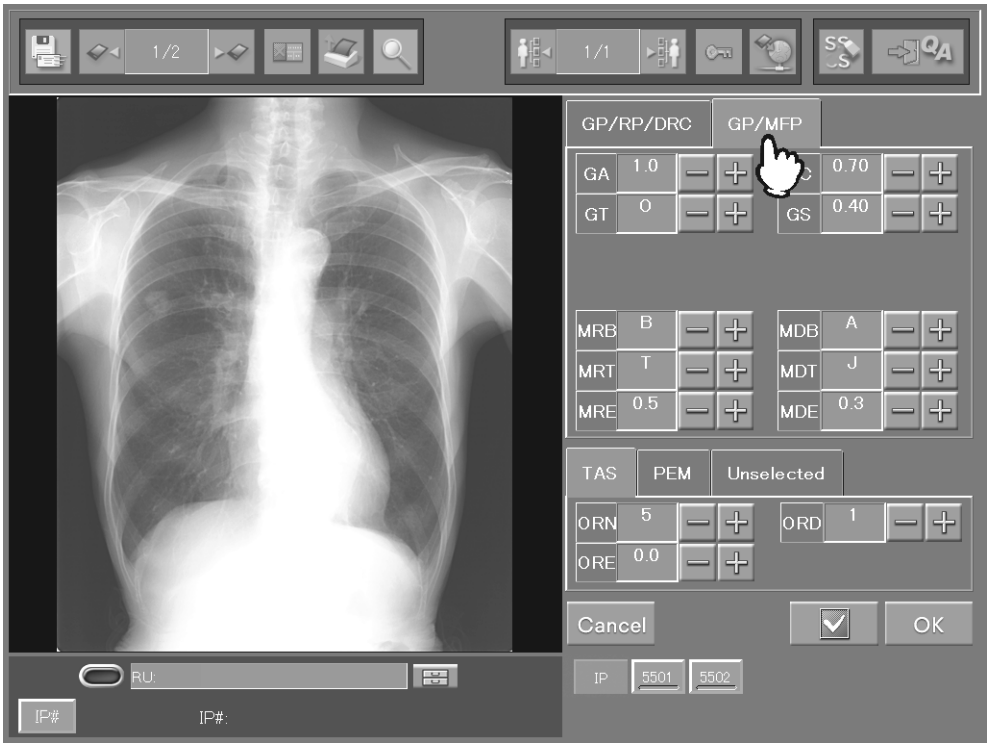
(2) Switching image processing mode

Select . The image processing mode will be switched.



(3) Selecting image processing

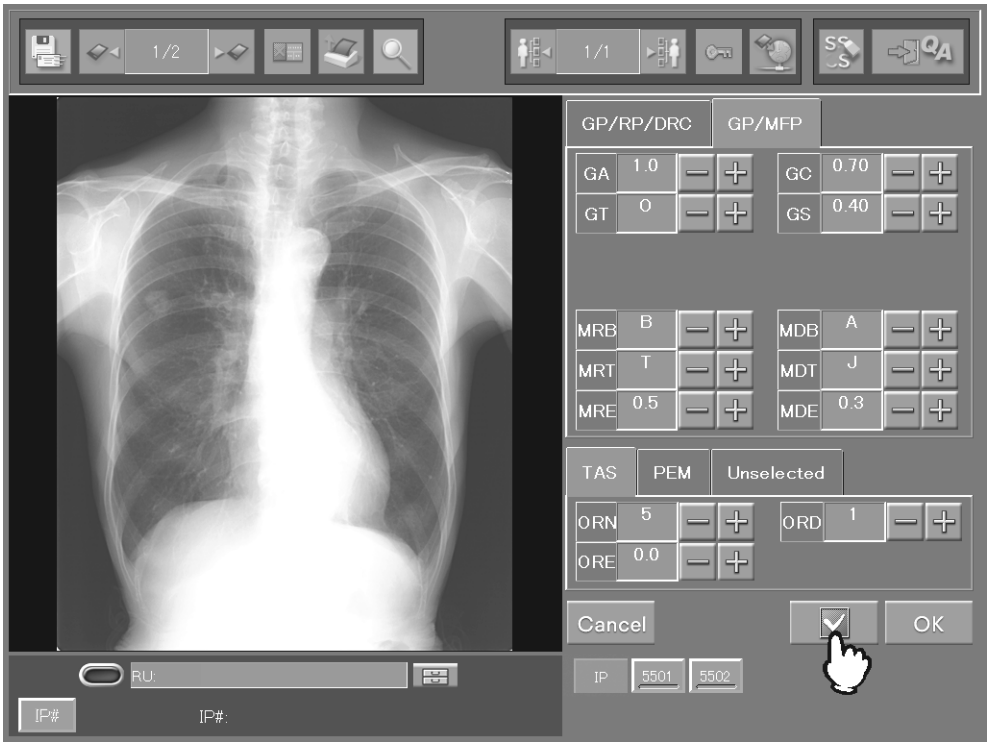
Select the folder tab (the button for "DRC") for a desired image processing to be performed. Refer to page 7 for combinations of simultaneous processing.



(4) Performing image processing

Select [−] / [+] to change values, and then select [✓]. The display image will reflect the image processing performed. (The display image does not reflect the result of PEM processing.)

(Image processing parameters → Page 7)



(5) Completing image processing

Select [OK] to fix the image processing, or select [Cancel] to cancel the image processing. The image processing mode will return to the previous mode.

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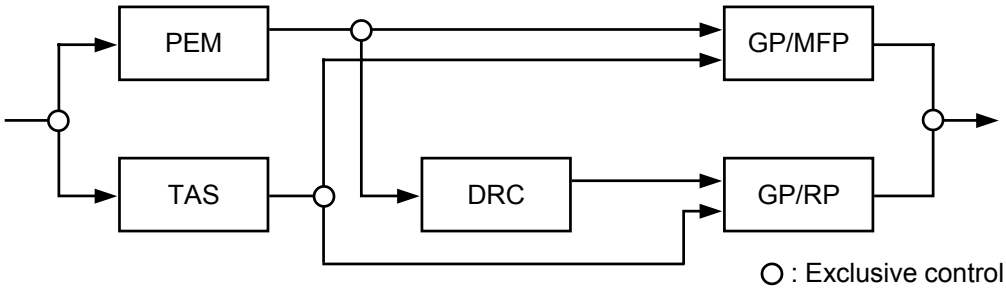
– *Image processing parameters* –

Explains the characteristics of the image processing parameters.

Some combinations of image processing may make simultaneous processing invalid. When selecting image processing to be performed, consider the following processing flow since each image processing is performed based on this flow.



GP (Tonal Conversion Processing) Parameter

Parameter	Characteristic	Input Range
GA	Inclination of the tonal curve. Adjusts the contrast of images.	–4.1 to –0.1 0.1 to 4.0 (the first decimal place excluding 0.0)
GT	Shape of the tonal curve. Attains the same effect as changing γ curve of various x-ray films.	A to Z (26 types)
GC	Central density of inclination of the tonal curve. Changes “GA” centering on the density determined here.	0.30 to 2.64 (the second decimal place)
GS	Amount of parallel translation of the tonal curve. Changes display density of the entire image.	–1.44 to 1.44 (the second decimal place)

RP (Spatial Frequency Processing) Parameter

Parameter	Characteristic	Input Range
RN	Enhanced frequency band in frequency processings. The frequency band determined here becomes the subject of enhancement processings.	0 to 9 (10 ranks)
RT	Shape of enhancement curve according to the density of images. By changing RT, the level of enhancement in the specific density area can be adjusted to the area with a specific density.	F, P to Z (12 types)
RE	Level of enhancement of frequency processings. Changes the strength of processings according to the value.	0.0 to 9.9 (the first decimal place) 10 to 16 (no decimal place)

DRC (Dynamic Range Control Processing) Parameter

Parameter	Characteristic	Input Range
DRR	Mask size of dynamic range control. Sets the area for processings along with “DRT”	0 to 9 (10 sizes)
DRT	Type of dynamic range control filter. Sets the density area for processings.	A to T (20 types)
DRE	Level of enhancement of dynamic range control filter processing. Changes the strength of processings according to the value.	0.0 to 1.0 (the first decimal place)

* Disabled to subtraction images.

TAS (Tomographic Artifacts Suppression Processing) Parameter

Parameter	Characteristic	Input Range
ORR	Mask size of tomographic artifacts suppression. Sets the most effective size according to the tomographic angle.	0 to 9 (10 sizes)
ORE	Level of enhancement of tomographic artifacts suppression. Changes the strength of processings according to the value.	10 to 16 (no decimal place)
ORD	Processing direction of tomographic artifacts suppression. Sets according to the reading direction and the orbital direction of tomography.	0: The orbit is at right angle to the green line of the cassette. 1: The orbit is parallel to the green line of the cassette.

* Disabled to subtraction images.

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MFP (Multi-objective Frequency Processing) Parameter

Parameter	Characteristic	Input Range
MDB	Frequency type of dynamic range control. Sets area for the processing along with “MDT”.	A to H (8 types)
MDT	Type of dynamic range control filter. Sets density area for the processing.	A to R (18 types)
MDE	Level of enhancement of dynamic range control filter processing. Changes the strength of processing according to the value.	0.0 to 2.0 (the first decimal place)
MRB	Enhanced frequency band in spatial frequency processing. The frequency band determined here becomes the subject of enhancement processing.	A to F (6 types)
MRT	Shape of enhancement curve according to the density of images. By changing MRT, the level of enhancement can be adjusted to the area with a specific density.	F, P to Y (11 types)
MRE	Level of enhancement of spatial frequency processing. Changes strength of the processing according to the value.	0.0 to 9.9 (the first decimal place) 10 to 16 (no decimal places)

* The parameter corresponding to GP in GP/MFP (GA, GT, GC, GS) are tonal conversion processing parameters for MFP, and their characteristics are the same as those of the current ones.

PEM (Pattern Enhancement Processing for Mammography) Parameter

Parameter	Characteristic	Input Range
PRN	Enhanced frequency band in spatial frequency processings. The characteristics are the same as those of “RN” in current tonal conversion processing parameters.	A to Z (26 types)
PRE	Level of enhancement of calcified regions. The characteristics are the same as those of “RE” in current tonal conversion processing parameters.	0.0 to 9.9 (the first decimal place) 10 to 16 (no decimal places)
PTE	Level of detecting edges. The level is changed according to the value.	A to Z (26 types)
PTC	Level of detecting calcified regions. The level is changed according to the value.	A to Z (26 types)

* Note that the display image does not reflect the result of PEM processing at the CR Console, therefore it can not be confirmed at the CR Console.

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